-- 25. A method for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising the steps of:

filtering said signal at the transmitter to accentuate the signal magnitude at a predetermined fixed frequency where said nonlinear distortion is expected to occur, without substantially affecting the signal magnitude at frequencies where said nonlinear distortion is not expected to occur;

C1

communicating the filtered signal to said receiver; and

re-filtering the filtered signal at said receiver to attenuate the signal magnitude at said fixed frequency.

26. A method in accordance with claim 25 wherein:

said signal is an integrally related carrier (IRC) television channel signal having composite second order (CSO) and composite triple beat (CTB) distortions present at different fixed frequencies; and

effects of said CSO and CTB distortions are reduced by filtering said signal at the transmitter to

accentuate the signal magnitude at a first fixed frequency where said CSO distortion resides and a second fixed frequency where said CTB distortion resides, and re-filtering said signal at the receiver to attenuate the signal magnitude at said first and second fixed frequencies.

27. A method in accordance with claim 25 wherein:

said signal is a harmonically related carrier (HRC) television channel signal having composite second order (CSO) and composite triple beat (CTB) distortions present at a common fixed frequency; and

effects of said CSO and CTB distortions are reduced by filtering said signal at the transmitter to accentuate the signal magnitude at said common fixed frequency and re-filtering said signal at the receiver to attenuate the signal magnitude at said common fixed frequency.

C1 cont.

28. A method in accordance with claim 25, wherein:

said communication path comprises a downstream communication path in a television distribution system;

said transmitter is located at a television headend; and

said receiver is associated with a subscriber terminal.

29. Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first filter at the transmitter to provide a filtered signal having an accentuated magnitude at a fixed frequency where said nonlinear distortion is expected to occur, said filter not substantially affecting the signal magnitude at frequencies where said nonlinear distortion is not expected to occur; and

a second filter at the receiver adapted to re-filter the filtered signal to attenuate the signal magnitude at said fixed frequency.

30. Apparatus in accordance with claim 29 wherein said second filter comprises a notch filter having a Z-transform transfer function described by:

$$H(z) = \frac{1 + 2\,\mathrm{Re}(\alpha) z^{-1} + z^{-2}}{1 - 2\,\mathrm{Re}(\alpha) R \cdot z^{-1} + R^2 \cdot z^{-2}}$$

where $\alpha = \exp(2j\pi\phi)$, ϕ is the normalized peak of the filter, and R is a constant; and

said first filter implements the inverse transfer function H(z)-1.

31. Apparatus in accordance with claim 29, wherein:

said communication path comprises a downstream communication path in a television distribution system;

said transmitter is located at a television headend; and

said receiver is associated with a subscriber terminal.

32. Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first notch filter at the transmitter having a first transfer function to provide a filtered signal having an accentuated magnitude at a fixed frequency where said

nonlinear distortion is expected to occur, said filter not substantially affecting the signal magnitude at frequencies where said nonlinear distortion is not expected to occur; and

a second notch filter at the receiver having a second transfer function adapted to re-filter the filtered signal to attenuate the signal magnitude at said fixed frequency;

wherein said first transfer function is the inverse of said second transfer function.

33. Apparatus in accordance with claim 32, wherein:

said communication path comprises a downstream communication path in a television distribution system;

said transmitter is located at a television headend; and

said receiver is associated with a subscriber terminal. --